IN THE CLAIMS:

Claims 1-18 (canceled).

Claim 19 (new): Continuously variable mechanical transmission mechanism that allows extending the range of variation that contains

A) a core that comprises

a core input shaft (I) and a core output shaft (o);

a first differential (Da) and a second differential (Db),

a variator (V) connected to a first shaft (6) of the first differential (Da) and to a first shaft (7) of the second differential (Db), so that the variator (V) allows to regulate the proportion of the power that passes through each one of said differentials, from the core input shaft (I) to the core output shaft (o),

having each one of said first differential (Da) and second differential (Db) a second shaft connected to the core input shaft (I) and a third shaft connected to the core output shaft (o); and

B) an input shaft (I') of the mechanism configurated to be alternatively connected to the core input shaft (I) and to the core output shaft (o), and an output shaft (o') of the mechanism configurated to be alternatively connected to the core output shaft (o) and to the core input shaft (I), so that when the input shaft (I') of the mechanism is connected to the core input shaft (I), the output shaft (o') of the mechanism is connected to the core output shaft (o), and when the input shaft (I') of the mechanism is connected to the core output shaft (o), the output shaft (o') of the mechanism is connected to the core input shaft (I),

C) comprising the mechanism in addition four gear ratios units (R_{2n}, R_{2n+1}, S_{2n}, S_{2n+1}),

each one comprising a multiplicity of gear ratios, being configurated the mechanism so that:

- the connection between the input shaft (I') of the mechanism and the core input shaft (I) is done via a first (R_{2n}) of said gear ratio units and according to a gear ratio selected from said unit,

- the connection between the input shaft (I') of the mechanism and the core output shaft (o) is done via a second (R_{2n+1}) of said gear ratio units and according to a gear ratio selected from said unit,

- the connection between the output shaft (o') of the mechanism and the core input shaft (I) is done via a third (S_{2n+1}) of said gear ratio units and according to a gear ratio selected from said unit,

- the connection between the output shaft (o') of the mechanism and the core output shaft (o) is done via a fourth (S_{2n}) of said gear ratio units and according to a gear ratio selected from said unit.

Claim 20 (new): Continuously variable mechanical transmission mechanism, that contains

an input shaft (I) and an output shaft (o);

a first differential (Dc) and a second differentials (Dd),

a variator (V) configurated so that it allows gear ratios to be obtained between 0 and ∞ between an input shaft and an output shaft of the variator (V), so that it allows gear ratios to be obtained among a gear ratio in which the output shaft remains blocked while the input shaft rotates freely and a gear ratio in which the input shaft is blocked while the output

shaft rotates freely, being the variator (V) connected to a first shaft (6) of the first differential (Dc) and to a first shaft (7) of the second differential (Dd);

two sets (R_{1i}, R_{2j}) of gear ratios units each one comprising a plurality of gear ratios and with a clutch or connection system configurated so that it is possible to connect in a selective mode a gear ratio within each set (R_{1i}, R_{2j}), so that it remains connected,

being the input shaft (I) joined to a second shaft of the first differential (Dc), and being the output shaft (o) joined to a second shaft of the second differential (Dd),

being one of the sets (R_{1i}) disposed so that any of its gear ratios may be connected between a third shaft (8) of the first differential (Dc) and the first shaft (7) of the second differential (Dd), and being the other of the sets (R_{2j}) disposed so that any of its gear ratios may be connected between a third shaft (9) of the second differential (Dd) and the first shaft (6) of the first differential (Dc).

Claim 21 (new): Continuously variable mechanical transmission mechanism, that contains

an input shaft (I) and an output shaft (o);

a first differential (Dc) and a second differential (Dd),

a variator (V) configurated so that it allows gear ratios to be obtained between 0 and ∞ between an input shaft and an output shaft of the variator (V), so that it allows gear ratios to be obtained among a gear ratio in which the output shaft remains blocked while the input shaft rotates freely and a gear ratio in which the input shaft is blocked while the output shaft rotates freely, being the variator (V) connected to a first shaft (6) of the first differential (Dc) and to a third shaft (8) of the first differential (Dc);

characterized in that also comprises

two sets (R_{1i}, R_{2j}) of gear ratios units each one comprising a plurality of gear ratios and with a clutch or connection system configurated so that it is possible to connect in a selective mode a gear ratio within each set (R_{1i}, R_{2j}), so that it remains connected,

being the input shaft (I) joined to a second shaft of the first differential (Dc), and being the output shaft (o) joined to a second shaft of the second differential (Dd),

being one of the sets (R_{1i}) disposed so that any of its gear ratios may be connected between a third shaft (8) of the first differential (Dc) and the first shaft (7) of the second differential (Dd), and being the other of the sets (R_{2j}) disposed so that any of its gear ratios may be connected between a third shaft (9) of the second differential (Dd) and the first shaft (6) of the first differential (Dc).

Claim 22 (new): Continuously variable mechanical transmission mechanism, that contains

an input shaft (I) and an output shaft (o);

a first differential (Dc) and a second differential (Dd),

a variator (V) configurated so that it allows gear ratios to be obtained between 0 and ∞ between an input shaft and an output shaft of the variator (V), so that it allows gear ratios to be obtained among a gear ratio in which the output shaft remains blocked while the input shaft rotates freely and a gear ratio in which the input shaft is blocked while the output shaft rotates freely, being the variator (V) connected to a first shaft (7) of the second differential (Dd) and to a third shaft (9) of the second differential (Dd);

characterized in that also comprises

two sets (R_{1i}, R_{2j}) of gear ratios units each one comprising a plurality of gear ratios and with a clutch or connection system configurated so that it is possible to connect in a selective mode a gear ratio within each set (R_{1i}, R_{2j}), so that it remains connected,

being the input shaft (I) joined to a second shaft of the first differential (Dc), and being the output shaft (o) joined to a second shaft of the second differential (Dd),

being one of the sets (R_{1i}) disposed so that any of its gear ratios may be connected between a third shaft (8) of the first differential (Dc) and the first shaft (7) of the second differential (Dd), and being the other of the sets (R_{2j}) disposed so that any of its gear ratios may be connected between a third shaft (9) of the second differential (Dd) and the first shaft (6) of the first differential (Dc).

Claim 23 (new): Continuously variable mechanical transmission mechanism, that contains

an input shaft (I) and an output shaft (o);

a plurality of differentials (D_1, D_2, D_{2n-1}, D_{2n}), that comprises a plurality of even differentials (D_2, D_{2n}) and a plurality of odd differentials (D_1, D_{2n-1});

a variator (V) configurated so that it allows gear ratios to be obtained between 0 and ∞ between an input shaft and an output shaft of the variator (V), so that it allows gear ratios to be obtained among a gear ratio in which the output shaft remains blocked whilst the input shaft rotates freely and a gear ratio in which the input shaft remains blocked while the output shaft rotates freely, being the variator (V) connected to a shaft (6) and to a shaft (7),

being the input shaft (I) joined to a first shaft of all the differentials (D_1, D_2, D_{2n-1}, D_{2n}), and being the output shaft (o) joined to a second shaft of all the differentials (D_1, D_2, D_{2n-1},

D_{2n}),

a plurality of sets (R_1, R_2, R_{2n-1}, R_{2n}) of gear ratios, that comprises a plurality of even sets (R_2, R_{2n}) and a plurality of odd sets (R_1, R_{2n-1}), comprising each one a plurality of gear ratios and with means of connections or clutches configurated so that it is possible to connect in a selective mode a gear ratio within each set (R_1, R_2, R_{2n-1}, R_{2n}), so that it remains connected,

being the sets (R_1, R_2, R_{2n-1}, R_{2n}) disposed so that the gear ratios of each one of the odd sets (R_1, R_{2n-1}) may be connected between a third shaft of each one of the odd differentials (D_1, D_{2n-1}) and the shaft (6) connected to the variator (V), and being the sets (R_1, R_2, R_{2n-1}, R_{2n}) disposed so that the gear ratios of each one of the even sets (R_2, R_{2n}) may be connected between a third shaft of each one of the even differentials (D_2, D_{2n}) and the shaft (7) connected to the variator (V).

Claim 24 (new): Mechanism as claimed in claim 19, wherein the characteristics of its differentials and of its gear ratios have been selected so that it produces a continuously variable gear ratio from zero to a maximum value.

Claim 25 (new): Mechanism as claimed in claim 19, wherein the characteristics of its differentials and of its gear ratios have been selected so that it produces a continuously variable gear ratio from a minimum negative value to a maximum positive value passing through zero and reversing the rotation direction.

Claim 26 (new): Mechanism as claimed in claim 20, wherein the output shaft (o) of

the mechanism is connectable to a shaft in a selective way by a direct connection or by a set of gears which reverse the rotation direction.

Claim 27 (new): Mechanism as claimed in claim 19, wherein the output shaft (o) of the mechanism is connectable to a shaft in a selective way by a direct connection or by a set of gears which reverse the rotation direction.

Claim 28 (new): Continuously variable mechanical transmission mechanism, that comprises

a mechanism for low range, that comprises a mechanism such as described in claim 20, for gear ratios where it is necessary to limit the output torque so that the maximum permitted is not exceeded,

and in addition comprises

a mechanism for high range, for gear ratios where the output torque is always lower than the maximum permitted torque without need for any limitation, that comprises a mechanism that allows extending the range of variation that contains

A) a core that comprises

a core input shaft (I) and a core output shaft (o);

a first differential (Da) and a second differential (Db),

a variator (V) connected to a first shaft (6) of the first differential (Da) and to a first shaft (7) of the second differential (Db), so that the variator (V) allows to regulate the proportion of the power that passes through each one of said differentials, from the core input shaft (I) to the core output shaft (o),

having each one of said first differential (Da) and second differential (Db) a second shaft connected to the core input shaft (I) and a third shaft connected to the core output shaft (o); and

B) an input shaft (I') of the mechanism configurated to be alternatively connected to the core input shaft (I) and to the core output shaft (o), and an output shaft (o') of the mechanism configurated to be alternatively connected to the core output shaft (o) and to the core input shaft (I), so that when the input shaft (I') of the mechanism is connected to the core input shaft (I), the output shaft (o') of the mechanism is connected to the core output shaft (o), and when the input shaft (I') of the mechanism is connected to the core output shaft (o), the output shaft (o') of the mechanism is connected to the core input shaft (I),

C) comprising the mechanism in addition four gear ratios units (R_{2n}, R_{2n+1}, S_{2n}, S_{2n+1}), each one comprising a multiplicity of gear ratios, being configurated the mechanism so that:

- the connection between the input shaft (I') of the mechanism and the core input shaft (I) is done via a first (R_{2n}) of said gear ratio units and according to a gear ratio selected from said unit,

- the connection between the input shaft (I') of the mechanism and the core output shaft (o) is done via a second (R_{2n+1}) of said gear ratio units and according to a gear ratio selected from said unit,

- the connection between the output shaft (o') of the mechanism and the core input shaft (I) is done via a third (S_{2n+1}) of said gear ratio units and according to a gear ratio selected from said unit,

- the connection between the output shaft (o') of the mechanism and the core output shaft (o) is done via a fourth (S_{2n}) of said gear ratio units and according to a gear ratio selected from said unit.

Claim 29 (new): Continuously variable mechanical transmission mechanism, as claimed in claim 28, wherein the minimum gear ratio of the high range mechanism is equal to the maximum gear ratio of the low range mechanism.

Claim 30 (new): Continuously variable mechanical transmission mechanism as claimed in claim 28, wherein in the region of minimum gear ratios of the high range mechanism and the region of maximum gear ratios of the low range mechanism there is overlapping with gear ratios common to both.

Claim 31 (new): Continuously variable mechanical transmission mechanism as claimed in claim 28, wherein the transition between the low range and high range is performed by suitable clutch or connection at the time when the gear ratio of both coincide.

Claim 32 (new): Continuously variable mechanical transmission mechanism as claimed in claim 28, that contains an only speed variator (V) for both the high range mechanism and the low range mechanism.

Claim 33 (new): Mechanism as claimed in claim 19, wherein the variator (V) consists of two electric machines that can work indiscriminately as a generator or as an engine and

controlled by electronic circuits.

Claim 34 (new): Mechanism as claimed in claim ~~33~~, in a machine with heat engine, e.g. motor vehicles, wherein the electric machines which comprise the variator are a starting motor of the machine and an electric generator to charge a battery of the machine.

Claim 35 (new): Mechanism as claimed in claim 19, wherein one of the gear ratios of the sets is zero, and it is embodied by the possibility of braking or blocking one of the shafts that it connects, doing so joined to a chassis of the mechanism.

Claim 36 (new): Continuously variable mechanical transmission mechanism, as claimed in claim 23, wherein one of the shafts (6) or (7) of the variator (V) is directly connectable to the output shaft (o) via a gear ratio (R_1) which can be activated or deactivated by means of a clutch or any other type of suitable connection.

Claim 37 (new): Continuously variable mechanical transmission mechanism, that contains

a core that comprises

a core input shaft (i) and a core output shaft (o);

a first differential (Da) and a second differential (Db),

a variator (V) connected to a first shaft (6) of the first differential (Da) and to a first shaft (7) of the second differential (Db), so that the variator (V) allows to regulate the proportion of the power that passes through each one of said differentials, from the core

input shaft (i) to the core output shaft (o),

having each one of said first differential (Da) and second differential (Db) a second shaft connected to the core input shaft (i) and a third shaft connected to the core output shaft (o)

wherein said first differential (Da) is formed by a planet (1), a multiplicity of satellites (2) and a ring (3), and said second differential (Db) is formed by a planet (8), a multiplicity of satellites (5) and a ring (4), being the input shaft (i) simultaneously joined to the satellite carrier around which satellites (2) rotate and also joined to the ring (4), whilst the output shaft (o) is simultaneously joined to the satellite carrier around which satellites (5) rotate and is also joined to the ring (3), being the variator (V) connected so that it drives shafts (6) and (7), that are joined to the planets (1) and (8).